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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/719,163	LONGSDORF ET AL.	
	Examiner	Art Unit	
	JENNIFER L. NORTON	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-24,26-29 and 32-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-24,26-29 and 32-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/25/10,12/9/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a **Non-Final Office Action** in response to the Request for Continued Examination filed on 09 December 2010. Claim 1 has been amended (per Claims filed on 29 October 2010). Claims 2, 3, 25, 30, 31 and 35-53 have been previously cancelled. Claims 1, 4-24, 26-29 and 32-34 are pending in this application.

Response to Arguments

2. Applicant's arguments see Remarks pg. 9, filed 29 October 2010 with respect to the rejection of claims 1, 4-24, 26-29 and 32-34 under 35 U.S.C 103(a) have been fully considered but they are not persuasive.

3. Applicant argues that the prior art fails to teach, "a device interface". The examiner respectfully disagrees.

> U.S. Patent No. 6,017,143 (hereinafter Eyrurek) teaches "A process device couples to a process control loop. The process device receives process signals. A memory in the process device contains a nominal parameter value and a rule. Computing circuitry calculates a statistical parameter of the process signal and operates on the statistical parameter and the stored nominal value based upon the stored rule and responsively provides an event output based upon the operation. Output circuitry provides an output in response to the event output." (abstract)
>
> "A device in a process control system includes an input which receives a process signal." (col. 1, lines 44-45)
>
> "In operation, transmitter 8 senses a process variable such as flow using sensor 16 and transmits the sensed process variable over loop 6." (col. 3, lines 9-12)

"As described above, process signal input 52 provides a process signal to microprocessor 46. The process signal may be a process variable from sensor 16, the control output provided to control element 18, a diagnostic signal sensed by sensor 16, or a control signal, process variable or diagnostic signal received over loop 6, or a process signal received or generated by some other means such as another I/O channel." (col. 4, lines 35-42)

U.S. Patent Publication No. 2004/0113942 A1 (Applicant's disclosure) A1 discloses FIG. 3 is a simplified diagram of a process device showing another view of the supervisory overlayer 104. In FIG. 3, process device 100 is shown as including a process interface 120, device circuitry 122 and input/output circuitry 124. The process interface 120 can be any mechanical and/or electrical circuitry which is used to couple the process device 100 to the industrial process. For example, the **process interface can comprise a sensor** such as a pressure sensor, flow sensor, temperature sensor, etc. used to sense process variables of the process. Other types of sensors are used to sense operation of the process device, for example current sensors, voltage sensors, etc. Similarly, process interface 120 can comprise an output stage which couples to a control element, for example an output stage which provides a signal to a valve controller which controls operation of the valve, or can include the final control element itself. The process interface can comprise any interface with a component of the device, and can include a connection used for other purposes by the device. For example, a connection to a databus by a microprocessor can provide a device interface. The device circuitry 122 in general comprises the electrical circuitry within device 100 which is used to perform the various functions of device 100. For example, the circuitry can be used for measurement or control of the industrial process. The input/output interface 124 is used to couple the process device 100 to an external component of the process control system. In the example shown in FIG. 3, the input/output circuitry 124 couples to a two-wire process control loop 18. Circuitry 124 can be used to send information over loop 18 or receive information from loop 18. In some embodiments, circuitry 124 includes the ability to power all of the circuitry within device 100 with power received over process control loop 18. The supervisory overlayer 104 may couple to one or more of the circuits 120, 122 or 124 as desired. The supervisory overlayer 104 can be implemented in software in a microprocessor, along with any required sensors or circuitry. The microprocessor can be a general microprocessor used to operate process device 100 or a separate microprocessor to execute the supervisory overlayer function. Some or all of the components which

> implement supervisory overlayer 104 can be shared with other circuitry within process device 100." (pg. 4, par. [0047])

Hence, Eryurek teaches a device interface comprises of a sensor (Fig. 1, element 16; sensor) as defined by the Applicant's Specification on pg. 4, paragraph [0047] of U.S. Patent Publication No. 2005/0113942 A1 and the limitations of claim 4.

4. Claims 1, 4-24, 26-29 and 32-34 stand rejected under 35 U.S.C. 103(a) as set forth below.

Claim Objections

5. The amendment to the Claims was received on 29 October 2010. The correction is acceptable and the objection is withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1, 4-7, 10-12, 15-24, 26-29 and 32-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,017,143 (hereinafter

Eryurek), in view of U.S. Patent No. 7,054,765 (hereinafter **Flaemig**) in further view of U.S. Patent No. 6,957,115 (herein after **Meyer-Grafe**).

(**Eryurek** as set forth below generally discloses the basic invention.)

Regarding independent claim 1, Eryurek teaches to,

- a transmitter for use in an industrial process, (col. 3, lines 9-12) comprising:
- a process variable sensor (Fig. 1, element 16) to sense a process variable (col. 3, lines 9-12);
- a databus for digital data communication between at least two devices/components (col. 2, line 65-col. 3, line 33 and Fig. 1);
- the safety response circuitry (abstract, col. 1, lines 44-64 and Fig. 1) in the process device which is separate from the two components (Fig. 2), the safety response circuitry comprising:
- a device interface (abstract, col. 1, lines 44-45 and Fig. 2, element 54; an input which receives a process signal) to couple to the process device (abstract, col. 3, lines 9-12 and co. 4, lines 35-42) and provide an output related to operation of a component of the process device (col. 1, lines 44-45 and col. 4, lines 24-28);
- the device interface comprises of communication between the at least two components of the device and a microprocessor of the device (abstract, col. 1, lines 44-45, col. 4, lines 11-28 and 35-42);

- a component monitor in the process device (monitors the process and performs computations, col. 3, lines 22-25; col. 8, line 30-col. 9, line 14), to monitor operation of the component based upon the output from the device interface and responsively identify a safety event of the component (col. 8, line 30-col. 9, line 14; computing circuitry provides an event output … in response to, col. 1, lines 53-57; provide an event output, col. 1, line 44-64; rules are selected to detect events, col. 1, lines 44-64); and provide a safety event output (col. 1, lines 31-36; typically, … pressure is monitored and an alarm is sounded or a safety shutdown is initiated if the process variable exceeds predetermined limits) indicative of a failure of the component (col. 6, lines 21-42); and
- a safety response module in the process device to respond to the safety event of the component based upon the safety event output (col. 1, lines 31-36; typically, … pressure is monitored and an alarm is sounded or a safety shutdown is initiated if the process variable exceeds predetermined limits) in accordance with a safety response (col. 6, lines 21-42; provide an event output and col. 1, line 44-64; rules are selected to detect events).
- Eryurek further teaches to detecting faulty device, identify device/component (Fig. 6).

Eryurek does not expressly teach to a safety response circuitry in the process device which a component monitor in the process device to monitor data carried on the

databus, and the device interface component monitor and safety response module are isolated from other components of the process device to provide redundancy.

Flaemig teaches to a component monitor (Fig. 1, element 12 of Fig. 1, element 1) to monitor operation of the device (col. 3, lines 21-26 and Fig. 1, element 4), and isolating components (Fig. 1, element 12) from other components of the process device to provide redundancy (col. 1, lines 59-65, col. 2, lines 35-37 and Fig. 1, element 1).

Flaemig does not expressly teach a component monitor in the process device to monitor data carried on the databus.

Meyer-Grafe teaches to a component monitor to monitor data carried on the databus (col. 2, lines 19-23 and col. 6, lines 47-54).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teaching of **Eryurek** to include a component monitor to monitor operation of the device, and isolating components from other components of the process device to provide redundancy to increase the integrity of measurement by positively notifying false indications are caused by loss of a pressure transmission fluid, which could previously go undetected, as well as, providing error information for failure of external conversion electronics and software (Flaemig: col. 1, lines 66-67 and col. 2, lines 1-7); a component to monitor data carried on the databus

to ensure the required safety criteria is fulfilled with a minimum amount of hardware redundancy in a safety-related automation bus system (Meyer-Grafe: col. 2, lines 4-7).

Furthermore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a device which includes a device interface, component monitor and safety response module, and a databus of the process device which is used to transfer digital data between the component of the device and a microprocessor of the device since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works, 150 U.S. 164 (1893).*

Regarding dependent claim 4,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the device interface comprises a sensor coupled to the process device (col. 3, lines 9-12, col. 4, lines 35-42 and Fig. 1, element 16; i.e. Fig. 2, element 16 via Fig. 2, element 54).

Regarding dependent claim 5,

Eryurek teaches as set forth above to an apparatus wherein the process device couples to a process control loop and the sensor is to monitor current flow in the process control loop (col. 4, lines 38-42; diagnostic signal sensed by sensor and col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …).

Regarding dependent claim 6,

Eryurek teaches as set forth above to an apparatus wherein the component monitor compares the sensed current with a current value (col. 4, lines 38-42; diagnostic signal sensed by sensor; col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …, col. 8, lines 42-44; determines faulty).

Regarding dependent claim 7,

Eryurek teaches as set forth above to an apparatus wherein the safety response module controls the current in a process control loop based upon a safety failure (col. 4, lines 38-42; diagnostic signal sensed by sensor, col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …, col. 8, lines 42-44; determines faulty and col. 6, lines 21-42; statistical parameter mean, current means).

Regarding dependent claim 10,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the device interface couples to a memory (col. 1, lines 44-46; input, memory).

Regarding dependent claim 11,

Eryurek teaches as set forth above to an apparatus wherein the component monitor is to detect errors in the data stored in the memory (col. 8, line 42–col. 9, line 10).

Regarding dependent claim 12,

Eryurek teaches as set forth above to an apparatus wherein the safety response module provides an alarm output (col. 1, lines 34-35; alarm is sounded).

Regarding dependent claim 15,

Eryurek teaches as set forth above to an apparatus wherein the safety response module attempts to compensate for the safety failure (col. 6, lines 21-42; defines the acceptable variations).

Regarding dependent claim 16,

Eryurek teaches as set forth above to an apparatus wherein the safety response module corrects for errors in data in the device (col. 6, lines 56-59; adjusted by adjusting the sensitivity parameter).

Regarding dependent claim 17,

Eryurek teaches as set forth above to the apparatus of claim 16 wherein the safety response module interpolates between data points in order to correct a data error (col. 3, lines 15-33; adjusting value by changing the flow in pipe).

Regarding dependent claim 18,

Eryurek teaches as set forth above to the apparatus of claim 16 wherein the safety response module holds a previous data point (col. 5, lines 51-53).

Regarding dependent claim 19,

Eryurek teaches as set forth above to an apparatus wherein the sensor comprises a voltage sensor (col. 2, lines 42-64; electrical voltage … or any parameter … maybe detected).

Regarding dependent claim 20,

Eryurek teaches as set forth above to an apparatus wherein a current sensor (col. 2, lines 42-64; current … or any parameter … maybe detected).

Regarding dependent claim 22,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the component monitor comprises software implemented in a microprocessor of the device (col. 10, lines 2-5).

Regarding dependent claim 23,

Eryurek teaches as set forth above to an apparatus wherein the safety event comprises a possibility of a future component failure (col. 1, lines 34-36; exceed predefined limits).

Regarding dependent claim 24,

Eryurek teaches as set forth above to an apparatus wherein the safety event comprises a detection of a component failure (col. 9, lines 43-45; faulty device).

Regarding dependent claim 25,

Eryurek teaches as set forth above to a process variable transmitter including the apparatus of claim 1 (Fig. 1, element 12).

Regarding dependent claim 26,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the safety response module is implemented in a feature module which couples to a sensor module of the process device (col. 10, lines 2-5 and Fig. 2).

Regarding dependent claim 27,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the safety response module is implemented in a feature module which couples to a plurality of sensor modules (col. 10, lines 2-5, col. 8, lines 65-66 and Fig. 2).

Regarding dependent claims 21 and 28,

Eryurek teaches as set forth above to an apparatus wherein the component monitor is to monitor data carried on the databus (monitors the process and performs computations, col. 3, lines 22-25; col. 8, line 30-col. 9, line 14).

Regarding dependent claim 29,

Eryurek teaches as set forth above to the apparatus of claim 1 including a display and wherein the component monitors data sent to the display (col. 4, lines 44-58; a display).

Regarding dependent claim 32,

Eryurek teaches as set forth above the apparatus of claim 1 wherein the component monitor monitors a plurality of process devices (col. 3, lines 34-36 and Fig. 6, element 208).

Regarding dependent claim 33,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the component monitor and safety response module are implemented in software (col. 10, lines 2-5).

Regarding dependent claim 34,

Eryurek does not expressly teach an apparatus wherein the software is to upgrade an existing process device.

Flaemig teaches to the software (Fig. 1, element 6; software of the processor) is to upgrade an existing process device (col. 1, lines 59-65 and col. 2, lines 44-50; the processor's capability to generate signals associated with the add-on device).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teaching of **Eryurek** to include the software is to upgrade an existing process device to increase the integrity of measurement by positively notifying false indications are caused by loss of a pressure transmission fluid, which could previously go undetected; as well as, providing error information for failure of external conversion electronics and software (Flaemig: col. 1, lines 66-67 and col. 2, lines 1-7).

8. **Claim 8 is rejected** under 35 U.S.C. 103(a) as being unpatentable over **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** and U.S. Patent No. 6,647,301 (hereinafter **Sederlund**).

Regarding dependent claim 8,

Eryurek teaches to the device interface (abstract and col. 1, lines 44-45; an input which receives a process signal).

Eryurek does not expressly teach a watch dog circuit.

Neither **Flaemig** nor **Meyer-Grafe** expressly teach a watch dog circuit.

Sederlund teaches a watch dog circuit (col. 7, lines 19-20 and Fig. 35).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teaching of **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** to include a watch dog circuit for the purpose of providing a rule set (col. 12, lines 12-60).

9. **Claim 9 is rejected** under 35 U.S.C. 103(a) as being unpatentable over **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** and U.S. Patent No. 6,476,522 (hereinafter **Hays**).

Regarding dependent claim 9,

Eryurek teaches to an apparatus with a device interface (abstract and col. 1, lines 44-45; an input which receives a process signal).

Eryurek does not expressly teach to sensing power drawn by circuitry of the process device.

Neither **Flaemig** nor **Meyer-Grafe** expressly teach sensing power drawn by circuitry of the process device.

Hays teaches sensing power drawn by circuitry of the process device (abstract and col. 1, lines 7-8; electronic components for controlling power drawn by a measurement device) for the purpose of controlling power drawn (col. 1, lines 7-8).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** to include sensing power drawn by circuitry of the process device to advantageously maximize power available for any type of sensor in the measurement device, as well as, provide a measurement device that supports a longer length of the power link (col. 2, lines 38-48).

10. **Claims 13 and 14 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Eryurek** in view of **Flaemig,** and further in view of **Meyer-Grafe** and U.S. Patent No. 4,356,900 (hereinafter **Sommer**).

Regarding dependent claims 13 and 14,

Eryurek teaches to an apparatus with a device interface (abstract and col. 1, lines 44-45).

Eryurek does not expressly teach the safety response module disconnects the process device from a process control loop.

Neither **Flaemig** nor **Meyer-Grafe** expressly teach the safety response module disconnects the process device from a process control loop.

Sommer teaches the safety response module disconnects the process device from a process control loop (abstract; deactuate the clutch unit so as to disconnect the motor from the driving apparatus in response to abnormal operating conditions) for the purpose of safety (abstract).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** to include the safety response module disconnects the process device from a process control loop to achieve a soft start which enables the conveyor belt to tension in a generally even manner whereby any backlash or rebounding is

minimized (col. 1, lines 35-39); as well as, provide an improved cam type control valve which is extremely resistant to operation degradation as a result of contaminants in the actuating fluid and which operates reliably to apply actuating fluid to the clutch unit in accordance with a predetermined profile so as to smoothly bring the driven apparatus up to full operating speed within a minimum amount of time and with a minimum amount of clutch slippage (col. 1, lines 62-67 and col. 2, lines 1-2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

The following references are cited to further show the state of the art with respect to diagnostic monitoring and control systems.

U.S. Patent No. 6,047,220 discloses a device in a process control system includes a memory for storing a series of sensed process variables and command outputs representative of a learned process cycle.

U.S. Patent No. 7,813,820 B2 discloses a controller capable of executing non-safety-related control logic.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER L. NORTON whose telephone number is (571)272-3694. The examiner can normally be reached on Monday-Friday between 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Albert DeCady/
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/JLN/